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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,505	09/30/2003	Arvind Arun Pande	VRT0097US	6043

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EXAMINER

TIMBLIN, ROBERT M

ART UNIT	PAPER NUMBER
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2167

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/675,505	Applicant(s) PANDE ET AL.	
	Examiner Robert M. Timblin	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-11, 13-17, 19-21, 23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-11, 13-17, 19-21 and 23-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to application 10/675,505 and applicant's remarks filed 6/29/06. Claims 1-5,7-11,13-17,19-21, and 23-24 are now under prosecution.

Response to Amendment

Amendments to claims 4, 12, and 14 have been considered and accepted. Therefore objections made to these claims are withdrawn.

The claim rejections under U.S.C. 101 are withdrawn, as the amended claims are sufficient to overcome the rejections as being directed to statutory subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 11, 13, and 14-24 are rejected under 35 USC 103(a) as being obvious over Huras (U.S. 2005/0278393 A1), in view of Shih et al. (U.S. 6,615,223 B1) (hereinafter Shih).

Regarding claims 1 and 21, Huras teaches determining that a change occurred to data in a first region of a first plurality of regions (table spaces 1-4 of figure 2) of a first

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volume (drawing reference 208 paragraph 0036, lines 1-3). Huras further teaches processing the log files in a discriminatory manner, so that only log files corresponding to a certain region of a first volume are replayed during backup (paragraph 0036, line 7; see also paragraph 0041); such that a change could be recorded but not replayed as long as a region is not recovery, which is the equivalent of without including a first region in a set of regions designated for processing. Wherein the change resulted from a restore operation ([0020,0035]; restoring a backup version of the table space); and in response to determining that the change occurred (log files 303 describe changes made to the database objects 210; [0041-0042]), updating information identifying a set of regions designated for replication (log files applying to one or more tablespaces 1, 2, 3, 4, collect information, such as tracking information, made to various tablespaces [0041]; furthermore, history records 400 are updated as the selected tablespaces 1, 2, 3, 4 are modified [0054]; also figures 3-4);

Huras does not explicitly disclose where the processing is replication to a second volume and wherein subsequent to the updating the information, the first region is included in the set of regions designated for replication to the second volume. In the same field of endeavor (database backup), Shih discloses replication of logged changes from one volume to a second volume (column 4, lines 27-31, et seq.). Furthermore, Shih teaches any data changes at a first replication site are replicated to other replication sites (col. 4 line 23-36).

Accordingly, it would have been obvious to a person of ordinary skill in the art to have incorporated Shih's teachings of replication from one volume to another with Huras' teachings of determination that a change occurred and discriminatory replay of

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log files based on the associated region of a volume to obtain a determination that a change occurred to a region of data in a volume without designating that region for replication to a second volume. Shih suggests a need for more efficiency in replication systems in column 3, lines 36-38. Huras suggests mirroring an organization's data structures efficiently in paragraph 0006.

Regarding claim 2, Huras does not explicitly disclose wherein the change occurred to the data in the first region as a result of restoring at least one region of the first plurality of regions from a second set of regions of a third volume. In the same field of endeavor (database backup), Shih discloses the use of replication of data to make a plurality of backup copies that can be used to restore a database in the event of a failure in lines 18-21 of column 1. Shih goes on to disclose in column 4, lines 27-31 that any data changes at a first replication site are replicated to a plurality of databases. The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 3, wherein the third volume is a snapshot of the first volume at one point in time (Huras, paragraph 0035).

Regarding claim 4, wherein a second region of the first plurality of regions is included in the set of regions designated for replication when a respective change to the second region is added to a log comprising at least one change to at least one region, wherein each of the at least one region in the log is designated for replication to the

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second volume, Huras teaches logging of changes to a second plurality of regions in paragraph 0036; see also paragraph 0042. In the same field of endeavor (database backup), Shih discloses replication of logged changes from one volume to a second volume (column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 5, wherein a third region of the first plurality of regions is included in the set of regions designated for replication when a second respective change occurs to the third region, and the second respective change to the third region cannot be added to the log. Huras teaches logging of changes to a plurality of regions in paragraph 0036; see also paragraph 0042, which is the equivalent of wherein a third region of the first plurality of regions is logged. Huras teaches in paragraph 0042, line 9 wherein a change cannot be added to a log. In the same field of endeavor (database backup), Shih teaches replication of logged changes from one volume to a second volume column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 6, this claim has been cancelled.

Regarding claim 7, Huras does not explicitly disclose replicating each region in the set of regions designated for replication from the first volume to the second volume. Shih teaches replication of logged changes from one volume to a second volume

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(column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 8, Huras discloses selective processing of log files containing changes to backup versions of log files, namely processing of log files containing changes corresponding to a region in a volume (Huras, paragraph 0032; see also paragraph 0036). In Huras only select regions are processed. Huras does not disclose replication of the selected regions. Shih discloses the equivalent by disclosing replication of changes (Shih, column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Regarding claim 11, wherein the data are accessible during the restoring (Huras, paragraphs 0069 and 0070). Huras discloses in paragraphs 0069 and 0070 recovery of selected tablespaces, and in these same paragraphs discloses how the method obtains locks for only those tablespaces, thus data in the database are accessible for update during the restore process.

Regarding claim 13, wherein a second region of the first plurality of regions is included in the set of regions designated for replication when a second respective change occurs to the second region, and the second respective change cannot be added to a log of changes to at least one region, wherein each region of the at least one region in the log is included in the set of regions designated for replication. Huras

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teaches logging of changes to a plurality of regions in paragraph 0036; see also paragraph 0042, which is the equivalent of wherein a second region of the first plurality of regions is logged. Huras teaches in paragraph 0042, line 9 wherein a change cannot be added to a log. In the same field of endeavor (database backup), Shih teaches replication of logged changes from one volume to a second volume (column 4, lines 27-31, et seq.). The motivation for combining the teachings of Shih with the teachings of Huras is the same as applied in the rejection of claim 1.

Claims 9, 10, and 12 are rejected under 35 USC 103(a) as being obvious over Huras (U.S. 2005/0278393 A1), in view of Shih et al. (U.S. 6,615,223 B1) (hereinafter Shih) as applied to the rejection of claim 11 in further view of Lomet (U.S. 6,578,041 B1).

Regarding claim 9, Huras and Shih disclose restore of select regions of a database but do not explicitly disclose wherein the replicating continues during the restoring. In the same field of endeavor (database backups), Lomet teaches online replication of a database that occurs in conjunction with normal database activity (column 14 lines 1-3).

Accordingly, it would have been obvious to a person of ordinary skill in the art to have incorporated Lomet's teachings of online replication of a database with Huras and Shih's teachings of restore of select regions of a database to obtain a database wherein replication continues during restoring. Lomet suggests a need in column 5, lines 59-62 where a description is provided of conventional databases lacking on-line

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backup capability. Shih suggests a need for more efficiency in replication systems in column 3, lines 36-38.

Regarding claim 10, Huras and Shih do not explicitly disclose wherein the data are accessible during the replicating. In the same field of endeavor (database backups), Lomet teaches wherein the data are accessible during the replicating. (Lomet, column 3, lines 26-27). Accordingly, it would have been obvious to a person of ordinary skill in the art to have incorporated Lomet's teachings of online backups with Huras and Shih's teachings of replication of regions from one volume to another volume for the purpose of improved availability to data. Lomet suggests a need in column 5, lines 59-62 where a description is provided of conventional databases lacking on-line backup capability. Huras suggests mirroring an organization's data structures efficiently in paragraph 0006.

Regarding claim 12, this claim has been cancelled.

Claims 14-16 are essentially the same as claims 6-8 except that they set forth the claimed invention as a system rather than a method and are rejected for the same reason as applied hereinabove.

Claims 17-20 are essentially the same as claims 1, 14, 15, and 16 respectively except that they set forth the claimed invention as a system rather than a method and are rejected for the same reason as applied hereinabove.

Claims 17-20 are essentially the same as claims 1, 14, 15, and 16 respectively except that they set forth the claimed invention as a computer readable medium rather than a method and are rejected for the same reason as applied hereinabove.

Response to Arguments

Applicant's arguments filed 6/29/06 have been fully considered but they are not persuasive.

With respect to the argument on page 7 that neither Shih nor Huras teach or suggest updating information identifying a set of regions designated for replication, in response to determining that a change, which resulted from a restore operation occurred, the examiner disagrees as these limitations are still taught (see rejection of claims 1 and 21 above).

Specifically, a restore operation is taught in paragraph [0035]. A determination of a change is taught as log files describing changes made to database objects 210 (or tablespaces 1, 2, 3, 4, that correlate to an identified set of regions [0041-0042]. Shih then teaches data changes at one site are replicated to a second site (second volume) (col. 4 line 23-36).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M. Timblin whose telephone number is 571-272-5627. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham can be reached on 571-272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

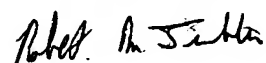
Leslie Wong

A handwritten signature in black ink, appearing to read 'Leslie Wong', with a long horizontal stroke extending to the right.

Primary Examiner

RMT
9/12/06

Robert M. Timblin

A handwritten signature in black ink, appearing to read 'Robert M. Timblin', with a stylized, cursive script.

Patent Examiner AU 2167